

TANAMAYEV, I.V.; BOL'SHAKOVA, N.K.

Process of gallium sulfate formation in aqueous solutions.
Zhur.neorg.khim. 7 no.9:2241-2244 S '62. (MIRA 15:9)
(Gallium sulfate)

TANANAYEV, I.V.; BOL'SHAKOVA, N.K.

Interaction of components in the system $\text{GaCl}_3\text{-K}_x\text{H}_2\text{-xSO}_4\text{-H}_2\text{O}$.
Zhur.neorg.khim. 7 no.9:2245-2250 S '62. (MIRA 15:9)
(Gallium chloride) (Systems (Chemistry))

TANANAYEV, I.V.; CHUDINOVA, N.N.

Reaction of gallium phosphate with phosphoric acid. Zhur.neorg.
khim. 7 no.10:2287-2289 0 '62. (MIRA 15:10)

1. Institut obshchey i neorganicheskoy khimii ineni N.S.Kurnakova
AN SSSR. (Gallium phosphate) (Phosphoric acid)

TANANAYEV, I.V.; ORLOVSKIY, V.P.

Composition and thermal stability of scandium halides ammoniates.
Zhur.neorg.khim. 7 no.10:2299-2303 0 '62. (MIRA 15:10)
(Scandium compounds—Thermal properties)

36773

S/089/62/012/005/004/014
B101/B108

21.4100

AUTHORS: Tananayev, I. V., Savchenko, G. S.

TITLE: Fluoro oxalates of tetravalent uranium

PERIODICAL: Atomnaya energiya, v. 12, no. 5, 1962, 392-396

TEXT: Experiments of substituting the fluorine of uranium tetrafluoride $UF_4 \cdot 2.5H_2O$ by oxalate ions are described. Results: (1) shaking the needle-shaped monoclinic tetrafluoride with dilute oxalic acid at $25 - 100^\circ C$ changed the solid phase completely after 5 to 6 days. A new compound, uranium fluoro oxalate $(UF_2)_2C_2O_4 \cdot 1.5H_2O$ which loses its crystal water at $190 - 200^\circ C$ was found to have formed. Crystal optical studies showed that $N_1 = 1.78$; $N_2 = 1.69$; hence this compound differs considerably from uranium tetrafluoride and uranium oxalate. N_1 and N_2 remained unchanged after fluoro oxalate with oxalic acid had been heated for 3 hrs. (2) Fluorine could not completely be substituted by melting $(UF_2)_2C_2O_4 \cdot 1.5H_2O$ with

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Fluoro oxalates of tetravalent...

S/089/62/012/005/004/014
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oxalic acid at 200°C (removal of the free oxalic acid by sublimation). The compound $(UF)_2(C_2O_4)_3$ was obtained which is also new and which might contain one molecule of crystal water. Owing to the small size of the crystals a crystal optical analysis of this compound was not possible. The ionic radicals $(UF_2)^{2+}$ and $(UF)^{3+}$ are assumed to take part in the reaction. There are 7 figures and 2 tables.

SUBMITTED: October 28, 1961

Card 2/2

36774

S/089/62/012/005/005/014
B101/B108

21.4/00

AUTHORS: Tananayev, I. V., Savchenko, G. S.

TITLE: Formation of uranium tetrafluoride in solution

PERIODICAL: Atomnaya energiya, v. 12, no. 5, 1962, 397-403

TEXT: The system $U(SO_4)_2 - HF - H_2O$ with constant uranium content (1.1880 g/100 ml) and increasing HF content ($n = HF/U(SO_4)_2 = 0 - 5$) was studied at 25°C. Results: (1) the system remains homogeneous up to $n = 2$. At $n = 1$, $n = 2$ the slightly dissociated ions UF^{3+} and UF_2^{2+} are formed step by step. At $n > 2$, $UF_4 \cdot 2.5H_2O$ is precipitated which first is cubic and then passes into the monoclinic form. The rate of conversion depends on n . Conversion is completed after 24 hrs at $n = 4$, and already after 3 to 4 hrs at $n > 4$. (2) Absorption spectra of the system, taken at $n = 0 - 4$ showed a linearly increasing optical density of the 619 mμ band up to $n = 2$. At $n > 2$ the optical density of this band decreases as a

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Formation of uranium tetrafluoride...

S/089/62/012/005/005/014
B101/B108

result of the sedimentation of uranium tetrafluoride. (3) Measurement of the pH confirmed the step-by-step addition of the fluorine anions to uranium: at $n = 2$, UF_2^{2+} arises, at $n \approx 2$ the poorly soluble monoclinic $UF_4 \cdot 2.5H_2O$ arises. Study of the solubility in the system $UF_4 - HF - H_2O$ at $25^\circ C$ gave a solubility curve from which the solid phases could be estimated: $UF_4 \cdot 2.5H_2O$ at 0 - 38% HF in the solution; UF_4 (poorly soluble) at 38 - 56% HF, and $UF_4 \cdot 4HF$ at 56 - 80% HF. The compound $UF_4 \cdot 4HF$ is stable only in concentrated HF ($> 55\%$). There are 11 figures and 2 tables.

SUBMITTED: October 28, 1961

Card 2/2

DEYCHMAN, E.N.; TANANAYEV, I.V.

Solubility of thorium, lanthanum, and cerium fluorides in uranyl
nitrate solutions. Zhur.anal.khim. 17 no.1:134-136 Ja-F '62.
(MIRA 15:2)

1. N.S.Kurnakov Institute of General and Inorganic Chemistry,
Academy of Sciences, U.S.S.R., Moscow.
(Thorium fluoride) (Lanthanum fluoride) (Cerium fluoride)
(Uranyl nitrate)

DEYCHMAN, E.N.; TANANAYEV, I.V.

Decomposition of lanthanum fluoride with oxalic acid and sodium
hydroxide. Zhur.anal.khim. 17 no.2:250-251 Mr-Ap '62.
(MIRA 15:4)

1. N.S.Kurnakov Institute of General and Inorganic Chemistry,
Academy of Sciences, U.S.S.R., Moscow.
(Lanthanum fluoride) (Sodium hydroxide)

TERESHIN, G.S.; TANANAYEV, I.V.

Determination of ethylenediaminetetraacetic acid and rare earths
present simultaneously. Zhur.anal.khim. 17 no.4:526-527 J1
'62. (MIRA 15:8)

1. N.S.Kurnakov Institute of General and Inorganic Chemistry,
Academy of Sciences, U.S.S.R., Moscow.
(Rare earths—Analysis) (Acetic acid)

POKOMAREV, V.D.; TANANAYEV, I.V.

Composition of uranyl ferrocyanides formed in the presence of
organic solvents. Zhur.anal.khim. 17 no.6:718-720 s 162.
(MIRA 16:1)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Uranyl ferrocyanide) (Solvents)

TANANAYEV, I.V., akademik: SEYFER, G.B.

Normal orthophosphate of niobium. Dokl. AN SSSR. ~~144~~ no.6:1314-1315
Je '62. (MIRA 15:6)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova
Akademii nauk SSSR.
(Niobium phosphates)

L 24521-65 EWT(m)/EPF(c)/EPF(n)-2/EPR/ENP(t)/ENP(b) Pr-4/Ps-4/Fu-4 LJT(c)/AFML
JD/WW/JW/JG
ACCESSION NR AM4040592 BOOK EXPLOITATION S/

Tananayev, Ivan Vladimirovich (Academician); Nikolayev, Nikolay Sergeyevich; B+/
Luk'yanychev, Yuriy Alekseyevich; Alenchikova, Inna Feofilaktovna

Chemistry of fluoride compounds of actinides (Khimiya storistykh soedineniy aktinidov), Moscow, Izd-vo AN SSSR, 1963, 227 p. illus., biblio. Errata slip inserted. 3,000 copies printed. (At head of title: Akademiya nauk SSSR. Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova)

TOPIC TAGS: actinide-fluoride compound, chemistry, thorium-fluoride compound, uranium-fluoride compound, neptunium-fluoride compound, plutonium-fluoride compound, americium-fluoride compound, curium-fluoride compound

PURPOSE AND COVERAGE: In the last twenty years, research on the chemistry of fluoride compounds has increased considerably. Interest in this group of compounds is due chiefly to their use in processing nuclear raw material and the use of uranium, thorium, and plutonium fluorides directly as nuclear fuel. Despite the large number of experimental studies of actinide fluorides, there are no general works devoted to the achievements in this field of chemistry. The objective of this monograph is to generalize the available material in the field of actinide fluorides. The authors believe that the monograph will be useful for a wide circle

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ACCESSION NR AM4040592

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of researchers and engineers. The monograph gives a complete review of material on the methods of obtaining, the physical and chemical properties of actinide-fluoride compounds that have been published in Soviet and foreign literature up to 1963; it also considers certain works that appeared in 1963.

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SUB CODE: GC

SUBMITTED: 30Oct63

NR REF SOV: 083

OTHER: 450

Card 3/3

SPIVAKOVA, E.M.; TANANAYEV, I.V., akademik, otv. red.; TRONEV, V.G., doktor khim. nauk, zam. otv. red.; KASHINA, P.S., tekhn. red.

[Chemistry of the rare elements; a bibliographic index of Soviet and foreign literature] Khimiia redkikh elementov; bibliograficheskii ukazatel' otechestvennoi i zarubezhnoi literatury. Moskva, Izd-vo AN SSSR. No.2. (1955-1956). 1963. 354 p. (MIRA 17:2)

1. Glavnyy bibliograf Biblioteki Otdeleniya khimicheskikh nauk AN SSSR (for Spivakova).

KHARITONOV, Yu.Ya.; ROZANOV, I.A.; TANANAYEV, I.V.

Infrared absorption spectra of thiocyanate complexes of hafnium (IV).
Izv. AN SSSR. Otd.khim. nauk no.4:596-601 Ap '63. (MIRA 16:3)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova AN SSSR.
(Hafnium compounds—Absorption spectra) . (Thiocyanates)

SEYFER, G.B.; TANANAYEV, I.V.

Normal niobium and tantalum orthophosphates. Zhur.neorg.khim.
8 no.1:63-65 Ja '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR. (Niobium phosphates) (Tantalum phosphates)

PETUSHKOVA, S.M.; TANANAYEV, I.V.

Interaction between $GdCl_3$ and sodium salts of ethylenediaminetetraacetic acid. Zhur.neorg.khim. 8 no.2:434-438 F '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.

(Gadolinium chloride) (Acetic acid)

TANANAYEV, I.V.; TEREYSHIN, G.S.

Salts of ethylenediaminetetraacetatoyttrium acid. *Zhur.neorg.khim.*
8 no.2:523-524 F '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.

(Yttrium compounds) (Acetic acid)

SEYFER, G.B.; TANANAYEV, I.V.

Pyrovanadophosphoric acid. Zhur.neorg.khim. 8 no.4:1011-1012
Ap '63. (MIRA 16:3)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.
(Vanadium compounds) (Pyrophosphoric acid)

TANANAYEV, I. V.
AID Nr. 978-3 28 May

THIOCYANATE COMPLEXES OF HAFNIUM (USSR)

Tananayev, I. V., I. A. Rozanov, and A. G. Kolgushkina. Zhurnal neorganicheskoy khimii, v. 8, no. 4, Apr 1963, 1013-1014.

S/078/63/008/004/011/013

The hafnium complexes $\text{Cs}[\text{HfO}(\text{NCS})_3 \cdot \text{H}_2\text{O}]\text{H}_2\text{O}$ (I), $\text{PyH}[\text{HfO}(\text{NCS})_3 \cdot \text{H}_2\text{O}]$ (II), $(\text{PyH})_3[(\text{HfO})_2(\text{NCS})_7] \cdot \text{H}_2\text{O}$ (III), and $(\text{PyH})_2[\text{Hf}(\text{NCS})_6]$ (IV), where PyN is pyridine, were synthesized for the first time at the Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR. The complexes were prepared from $\text{HfOCl}_2 \cdot 8\text{H}_2\text{O}$, NaNCS, and CsCl in aqueous solution for I, and without CsCl in pyridine solution at an initial $\text{PyH}:\text{HfOCl}_2$ molar ratio of 1:1 for II and of 2:1 for III. Complex IV was synthesized in 2M HCl, from 0.4M $\text{HfOCl}_2 \cdot 8\text{H}_2\text{O}$ at an initial $\text{PyHCl}:\text{HfOCl}_2:\text{NaNCS}$ molar ratio of 2:1:6. The compositions of I, II, III, and IV were determined by

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AID Nr. 978-3 28 May

THIOCYANATE COMPLEXES [Cont'd]

S/078/63/008/004/011/013

elemental analysis, and their structure from thermogravimetric analysis, pH in aqueous solution, and molecular conductivity data. It was found that all the complexes hydrolyze in H_2O and that with increasing absolute value of the negative logarithm of the concentration of the complex, the pH also increased. The molecular electrical conductivity measured in methanol for all complexes at $V = 500$, where $V =$ dilution in l/mol, ranged from 117 to 280 $ohm^{-1} \cdot cm^2$, and at $V = 1000$ from 134 to 311 $ohm^{-1} \cdot cm^2$. [NI]

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S/078/63/008/004/012/013
A059/A126AUTHORS: Avduyevskaya, K.A., Tananayev, I.V.TITLE: On the interaction of GeO_2 with orthophosphoric acid

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 4, 1963, 1,020 - 1,021

TEXT: The aim of this paper is to explain the conditions of germanium orthophosphate formation, its nature, thermal stability, and the reason of its dissolution in H_3PO_4 . H_3PO_4 solutions were saturated with GeO_2 at 25°C. The solubility of GeO_2 in H_3PO_4 passes a minimum (0.025 mole/kg) at $\text{H}_3\text{PO}_4 = 1.5$ mole/kg. When GeO_2 is dissolved in H_3PO_4 at a concentration of the latter in excess of 2.7 mole/kg, metastable solutions are formed. The solid phase precipitated from the metastable solutions after washing with alcohol and drying at 100°C corresponds to the formula $\text{GeO}_2 \cdot \text{P}_2\text{O}_5 \cdot 2\text{H}_2\text{O}$. This compound is insoluble in H_3PO_4 at concentrations greater than 3.0 mole/kg. While the solubility of GeO_2 in H_2SO_4 , HClO_4 , and HNO_3 decreases with increasing concentration of the acid, germanium oxide is very easily soluble in HF and $\text{H}_2\text{C}_2\text{O}_4$, and so GeO_2 .

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On the interaction of GeO_2 with orthophosphoric acid

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$\cdot \text{P}_2\text{O}_5 \cdot 2\text{H}_2\text{O}$ has to be considered as the diphosphorogermanic acid of the composition either $\text{H} [\text{Ge}(\text{OH})(\text{HPO}_4)_2]$ or $\text{H}_2 [\text{GeO}(\text{HPO}_4)_2]$. It has been further established that, at 700°C , GeP_2O_7 is formed from this acid which begins to split off P_2O_5 at 900°C . At a temperature in the neighborhood of $1,200^\circ\text{C}$, P_2O_5 is completely removed leaving molten GeO_2 . There are 2 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N.S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: October 12, 1962

Card 2/2

PETUSHKOVA, S.M.; TANANAYEV, I.V.

Gadolinium phosphates. Zhur.neorg.khim. 8 no.5:1064-1067 My
'63. (MIRA 16:5)
(Gadolinium phosphate)

TANANAYEV, I.V.; VASIL'YEVA, V.P.

Lanthanum phosphates. Zhur.neorg.khim. 8 no.5:1070-1075 My '63.
(MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova
AN SSSR.

(Lanthanum phosphate)

TANANAYEV, I.V.; CHUDINOVA, N.N.

Interaction of gallium chloride with phosphate ions. Zhur.-
neorg.khim. 8 no.5:1076-1083 My '63. (MIRA 16:5)
(Gallium chloride) (Phosphates)

KHARITONOV, Yu.Ya.; ORLOVSKIY, V.P.; TANANAYEV, I.V.

Infrared absorption spectra of chloride and bromide compounds of scandium with ammonia. Zhur.neorg.khim. 8 no.5:1093-1103 My '63. (MIRA 16:5)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR.

(Scandium compounds--Absorption spectra) (Ammonia)

TANANAYEV, I.V.; TERESHIN, G.S.

Complex formation of yttrium with ethylenediaminetetraacetic acid, Zhur. neorg. khim. 8 no.10:2258-2270 0 '63. (MIRA 16:10)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR.

(Yttrium compounds) (Acetic acid)

SHPIRT, M.Ya.; SENDUL'SKAYA, T.I.; TANANAYEV, I.V.

Coprecipitation of germanium with silicic acid. Zhur. neorg.
khim. 8 no.11:2611-2613 N '63. (MIRA 17:1)

1. Institut goryuchikh iskopayemykh.

TANANAYEV, I.V.; KUZ'MINA, T.N.

Conditions of precipitation of zirconium diselenide. *Zhur. teorg.
khim.* 8 no.12:2821-2822 D '63. (MIRA '7:9)

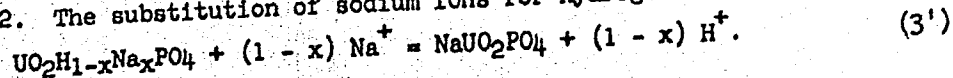
S/089/63/014/004/008/019
A066/A126

AUTHORS: Tananayev, I.V., Rodicheva, G.V.

TITLE: Study of the reaction between $\text{UO}_2(\text{NO}_3)_2$ and Na_2HPO_4 in an aqueous solution

PERIODICAL: Atomnaya energiya, v. 14, no. 4, 1963, 395 - 399

TEXT: The system $\text{UO}_2(\text{NO}_3)_2 - \text{Na}_2\text{HPO}_4 - \text{H}_2\text{O}$ was studied by determining the solubility, pH, electrical conductivity, and apparent volume of the precipitates. The interaction in this system was found to proceed in three stages: 1) $n = \text{Na}_2\text{HPO}_4 : \text{UO}_2(\text{NO}_3)_2 = 0 - 0.67$. This part of the system is characterized by an excess of uranyl ions in the solution. Phosphorus was not detected in the solution. $(\text{UO}_2)_3(\text{PO}_4)_2$ is formed. 2) $n = 0.67 - 1.0$. The UO_2^{2+} concentration decreases systematically. There are no PO_4^{3-} ions, and $\text{UO}_2\text{H}_x\text{Na}_{1-x}\text{PO}_4$ is formed. 3) $n = 1 - 2$. The substitution of sodium ions for hydrogen ions is continued:



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Study of the reaction between

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A066/A126

$\text{NaUO}_2\text{PO}_4 \cdot n\text{H}_2\text{O}$ forms. The titrimetric determination of uranyl ions and of the free acidity in their salts is discussed. The optimum conditions for preparing compact precipitates of uranyl phosphate were found to be $n = 1 - 1.5$ and $\text{pH} \approx 2.5$. There are 5 figures and 1 table.

SUBMITTED: June 9, 1962

Card 2/2

TANANAYEV, I.V.; CHUDINOVA, N.N.

Gravimetric determination of gallium as phosphate. *Zhur. anal. khim.*
18 no.10:1274 0 '63. (MIRA 16:12)

1. Kurnakov Institute of General and Inorganic Chemistry, Academy
of Sciences, U.S.S.R., Moscow.

S/020/63/148/004/019/025
B142/B144

AUTHORS: Buslayev, Yu. A., Nikolayev, N. S., Tananayev, I. V.,
Academician

TITLE: Solubility and composition of the solid phases in the
system $\text{HF} - \text{UO}_3 - \text{H}_2\text{O}$

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 4, 1963,
832-834

TEXT: Data for compounds of the system $\text{HF} - \text{UO}_3 - \text{H}_2\text{O}$ known from
publications are compiled. Here the region between UO_3 and HF which
hitherto has received least attention was studied. The method of
isothermal solubility was used. Uranic acid (prepared from the oxide
obtained by calcining $\text{UO}_2(\text{NO}_3)_2$) and hydrofluoric acid of various
concentrations were stirred in teflon vessels in a thermostat at $20 \pm 0.1^\circ\text{C}$
for 2×24 hrs. Samples were taken from the liquid and the sediment, and
their contents of U and HF were determined. Decomposition of the uranic
acid ($\text{UO}_3 \cdot 2\text{H}_2\text{O}$) is assumed between 0.58 and 0.73% HF. Then, a compound

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Solubility and composition of the ...

S/020/63/148/004/019/025
B142/B144

$U_2O_5F_2 \cdot 2H_2O$ appears, followed by $UO_2F_2 \cdot 2H_2O$ (up to 22.85% HF); between 24.11 and 91.40% HF, $UO_2F_2 \cdot 2HF \cdot 4H_2O$ appears, which has to be considered as a complex acid $H_2[UO_2F_4] \cdot 4H_2O$, in analogy to the corresponding plutonyl fluoride system. Maximum solubility in the system is reached at a content of 62.5% UO_3 . There are 1 figure and 1 table. ✓

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

"SUBMITTED: November 2, 1962

Card 2/2

SPIVAKOVA, E.M.,; BABAYAN, I.A.; TANANAYEV, I.V., akademik, otv.
red.; TRONEV, V.G., doktor khim. nauk, zam. otv. red.;
DOROKHINA, I.N., tekhn. red.

[Chemistry of rare elements; a bibliographic index of Soviet
and foreign literature] Khimiia redkikh elementov; bibliogra-
ficheski ukazatel' otechestvennoi i zarubezhnoi literatury.
Moskva. Izd-vo "Nauka," No.3. Ge, Zr, Hf, Ta, Se, Te, Re.
(1955-1956). 1964. 261 p. (MIRA 17:4)

1. Glavnyy bibliograf Biblioteki Otdeleniya khimicheskikh nauk
Akademii nauk SSSR (for Spivakova).

ACCESSION NR: AP4040728

S/0192/64/005/003/0397/0403

AUTHOR: Kuznetsov, V. G.; Petushkova, S.M.; Tananayev, I.V.

TITLE: Radiographic investigation of gadolinium phosphates

SOURCE: Zhurnal strukturnoy khimii, v. 5, no. 3, 1964, 397-403

TOPIC TAGS: gadolinium phosphate radiography, gadolinium phosphate, powder radiography

ABSTRACT: Using methods of powder radiography, solid phases formed at 250 in systems $GdCl_3-H_3PO_4-H_2O$ and $GdCl_3-Na_3PO_4-H_2O$ were investigated. The article contains tabulated data of radiographic analysis covering the obtained products: $9GdPO_4 \cdot Gd(OH)_3 \cdot 27H_2O$; $GdPO_4 \cdot H_2O$; $4GdPO_4 \cdot Na_3PO_4 \cdot 12H_2O$, as well as the products of their heat treatment: $GdPO_4$; $GdPO_4 \cdot 0.33H_2O$; $18GdPO_4 \cdot Gd_2O_3$ and $4GdPO_4 \cdot Na_3PO_4$. It was found that $GdPO_4$ has two crystalline modifications: hexagonal ($a=6.89\text{\AA}$; $c=6.33\text{\AA}$; spatial group $D_6^4=P6_222$ and $D_6^5=P6_422$) which is isostructural with the hexagonal modifications of lanthanum, cerium and neodymium phosphates, and probably monoclinal isostructural monazite. The results obtained may serve for the identification of the compounds. Orig. art. has: 6 tables.

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ACCESSION NR: AP4040728

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova, AN SSSR (Institute of General and Inorganic Chemistry, AN SSSR)

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SUB CODE: IC

NR REF SOV: 001

ENCL: 00

OTHER: 006

Card

2/2

ACCESSION NR: AP4009354

S/0078/64/009/001/0213/0214

AUTHORS: Tananayev, I.V.; Vasil' yeva, V.P.

TITLE: Concerning lanthanum phosphate solubility in solutions of phosphoric acid

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 1, 1964, 213-214

TOPIC TAGS: lanthanum phosphate, gadolinium phosphate, cerium phosphate, lanthanide ionic radius, acid phosphates

ABSTRACT: While phosphates of such trivalent elements as Fe, Al, Cr, In, etc., and their formation of complex metallo-phosphoric acids are known, nothing is known about similar behavior of rare earths. The present article covers the solubility of LaPO_4 in H_3PO_4 and the formation of lanthanide acid phosphates depending on ion radius and electron structure. Saturated solutions in different concentrations of H_3PO_4 were prepared and the solutions and sediments were analyzed using the magnesium method. The conclusion

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ACCESSION NR: AP4009354

is that the isotherm in a system $\text{LaPO}_4\text{-H}_2\text{PO}_4\text{H}_2\text{O}$ at 25 °C in phosphoric acid concentrations from 0.6 to 78% shows a maximum of 1.83% LaPO_4 solubility. The formation of lanthanum acid phosphate is difficult because a precise composition is unknown. The dependence of lanthanide phosphate solubility on the lanthanide ionic radius is established. Finally, it was found that the solubility, formation of acid phosphates and their stability increase with the decreasing radius. Orig. art has 2 figures, no formulae, 1 table.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova AN SSSR (Institute of General and Inorganic Chemistry, AN SSSR)

SUBMITTED: 12Apr63

DATE ACQ: 07Feb64

ENCL: 00

SUB CODE: OH

NO REF SOV: 004

OTHER: 010

Card 2/2

TANANAYEV, I.V.; CHUDINOVA, N.N.

Preparation and properties of neutral gallium phosphate. Zhur.
neorg. khim. 9 no.2:244-250 F'64. (MIRA 17:2)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova
AN SSSR.

TANANAYEV, I.V.; PETUSHKOVA, S.M.

Interaction of gadolinium phosphate with phosphoric acid.
Zhur. neorg. khim. 9 no.5:1094-1098 My '64.

Gadolinium pyrophosphates. Ibid.:1099-1102

(MIRA 17:9)

TANANAYEV, I.V.; DZHURINSKIY, B.F.; MIKHAYLOV, Yu.N.

Synthesis and properties of germanium compounds of the type
 $MGeCl_3$ (M - NH_4 , Cs, Rb, K). Zhur. neorg. khim. 9 no.7:
1570-1577 J1 64. (MIRA 17:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR.

KUZNETSOV, V.G.; TANANAYEV, I.V.; SHIRT, M.Ya.

Interaction of germanium dioxide with the oxides of aluminum, iron, silicon, calcium, and magnesium on heating. Zhur. neorg. khim. 9 no.8:1934-1938 Ag '64.

(MIRA 17:11)

KUZNETSOV, V.G.; VASIL'YEVA, V.P.; TANANAYEV, I.V.

X-ray examination of lanthanum phosphates. Zhur. neorg. khim.
9 no.9:2053-2059 S '64. (MIRA 17:11)

L 14331-65 EWT(m)/EWP(j)/EWP(b) AFWL/ASD(a)-5/AFETR JD/JG/RM
 ACCESSION NR: AP4044807 S/0078/64/009/009/2111/2116

AUTHORS: Tananayev, I.V.; Vasil'yeva, V.P.

TITLE: Lanthanum pyrophosphates

SOURCE: Zhurnal neorganicheskoy khimii, v. 9, no. 9, 1964, 2111-2116

TOPIC TAGS: lanthanum pyrophosphate, solubility, specific electric conductivity, $\text{La}(\text{NO}_3)_3 \cdot \text{Li}_4\text{P}_2\text{O}_7 \cdot \text{H}_2\text{O}$ system, $\text{La}(\text{NO}_3)_3 \cdot \text{Na}_4\text{P}_2\text{O}_7 \cdot \text{H}_2\text{O}$ system

ABSTRACT: Solubilities, hydrogen ion concentrations and specific electric conductivities were determined at 25°C in the systems $\text{La}(\text{NO}_3)_3 \cdot \text{Me}_4\text{P}_2\text{O}_7 \cdot \text{H}_2\text{O}$, where $\text{Me} = \text{Li}, \text{Na}$ or K . The nature of the alkali metal in $\text{Me}_4\text{P}_2\text{O}_7$ and the molar ratio of the $\text{Me}_4\text{P}_2\text{O}_7 : \text{La}(\text{NO}_3)_3$ designated as n , affected the interaction between the lanthanum ion and the pyrophosphate. In the range where $n = 0-0.75$, the slightly soluble hydrate of the normal lanthanum pyrophosphate $\text{La}_4(\text{P}_2\text{O}_7)_3 \cdot 12\text{H}_2\text{O}$ was formed in all systems: $4\text{La}(\text{NO}_3)_3 + 3\text{Me}_4\text{P}_2\text{O}_7 \rightarrow \text{La}_4(\text{P}_2\text{O}_7)_3 + 12\text{MeNO}_3$. When $n = 1$, mixed salts of the type MeLaP_2O_7 were formed: $\text{La}_4(\text{P}_2\text{O}_7)_3 + \text{Me}_4\text{P}_2\text{O}_7 \rightarrow 4\text{MeLaP}_2\text{O}_7$. In the latter

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L 14331-65

ACCESSION NR: AP4044807

case no La^{3+} or $\text{P}_2\text{O}_4^{4-}$ ions were formed in the Li and Na pyrophosphate systems, and only a limited number of these ions were formed in the K system. In the range $n = 0.75-1$, a mixture of both the normal and the mixed pyrophosphates precipitated, the proportion depending on the value of n . When $n = 1$, the reaction in the three systems was different. In the Li system, the slightly soluble $\text{Li}_2\text{P}_2\text{O}_7$ was formed up to $n = 1.5$; there was no further reaction between the precipitate and this compound. In the Na system, when $n = 6$, the precipitate rapidly dissolved due to complex formation: $\text{NaLaP}_2\text{O}_7 + \text{P}_2\text{O}_4^{4-} \rightarrow [\text{La}(\text{P}_2\text{O}_7)_2]^{5-} + \text{Na}^+$. In the K system complex formation occurred when $n = 1-2$. Thus the excess of the $\text{Me}_2\text{P}_2\text{O}_7$ necessary for solution of the precipitate decreased in the series K Na Li. The pH and the conductivity curves showed a sharp break at the end of the lanthanum pyrophosphate forming stage and a sharp rise during the mixed pyrophosphate forming stage. Thermograms of the $\text{LiLaP}_2\text{O}_7 \cdot 4\text{H}_2\text{O}$, $\text{NaLaP}_2\text{O}_7 \cdot 4\text{H}_2\text{O}$ and $\text{KLaP}_2\text{O}_7 \cdot 4\text{H}_2\text{O}$ showed endotherms and exotherms at increasing temperatures in going from Li to K. Orig. art. has: 10 figures.

Card 2/3

L 14331-65

ACCESSION NR: AP4044807

0

ASSOCIATION: None

SUBMITTED: 19Jun63

ENCL: 00

SUB CODE: IC

NR REF SOV: 001

OTHER: 003

Card

3/3

L 34071-65 EMT(m)/EWG(m) FM/HH

ACCESSION NR: AP5007615

S/0363/65/001/001/0100/0107

#1
10
8

AUTHOR: Tananayev, I. V.; Korol'kov, A. P.

TITLE: A study of the reaction of formation methods of preparation and ion ex-
change properties of acidic zinc ferrocyanide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965, 100-107

TOPIC TAGS: zinc ferrocyanide, acid zinc ferrocyanide, ferrocyanide synthesis, ion exchange property

ABSTRACT: The formation of acidic zinc ferrocyanide, $H_2Zn_3(Fe(CN)_6)_2$, by the reaction of $ZnSO_4$ and $H_4(Fe(CN)_6)$ was studied experimentally in order to obtain an inorganic ion-exchange compound. Aqueous solutions of freshly prepared $H_4(Fe(CN)_6)$ and of $ZnSO_4$ were reacted in the absence or presence of H_2SO_4 and their interaction was determined by potentiometric titration, conductivity measurements, determination of the apparent volume of precipitate and by measuring the acidic and ion-exchange properties of the product. The reaction was shown to proceed via formation of $Zn_2(Fe(CN)_6)$, but this first step proceeds rapidly or is suppressed in the presence of sulfuric acid. $H_2Zn_3(Fe(CN)_6)_2$ can be prepared by the slow reaction of

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L 34071-65

ACCESSION NR: AP5007615

$\text{Zn}_2(\text{Fe}(\text{CN})_6)$ with a stoichiometric amount of $\text{H}_4(\text{Fe}(\text{CN})_6)$; by the more rapid interaction of 3:2 molar amounts of ZnSO_4 and $\text{H}_4(\text{Fe}(\text{CN})_6)$ in aqueous solution; and by the latter reaction in the presence of strong acid, requiring an excess of $\text{H}_4(\text{Fe}(\text{CN})_6)$. Precipitates prepared by the second method were separated and purified by centrifuging and washing. Potentiometric titration with alkali indicated exactly the proposed composition of $\text{H}_2\text{Zn}_3(\text{Fe}(\text{CN})_6)_2$, and the ion-exchange properties of the compound were proved by its reaction with ZnSO_4 . Orig. art. has: 9 figures, 2 tables and 3 formulas.

ASSOCIATION: Kafedra neorganicheskoy khimii, Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Inorganic chemistry department, Moscow fine chemical technology institute)

SUBMITTED: 10Nov64

ENCL: 00

NO REF SOV: 002

OTHER: 002

SUB CODE: IC

Card 2/2

L 34203-65 EWT(1)/EWT(m)/EEC(t)/EXP(t)/EXT(5) Feb LJP(c) JD
ACCESSION NR: AP5007617 S/0363/65/001/001/0113/0120

AUTHOR: Kharitonov, Yu. Ya.; Chudinova, N. N.; Tananayev, I. V.

TITLE: The infrared absorption spectra and thermal decomposition of acidic gal-
lium phosphatē

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965,
113-120

TOPIC TAGS: gallium phosphate, acid gallium phosphate, infrared spectrum, ther-
mal decomposition, proton bonding, xray diffraction, berlinite

ABSTRACT: The type of proton bonding of acidic gallium phosphate, $\text{GaPO}_4 \cdot \text{H}_3\text{PO}_4 \cdot 2.5 \text{H}_2\text{O}$, and its thermal decomposition at up to 800C was experimentally determined in order to study the properties of the binder material used for high-temperature applications. The compound, prepared by reaction of gallium phosphate with 35-75% phosphoric acid at 75C (Zh. Neorgan. khimii v. 7, 1962, 2285), was studied by infrared spectroscopy, X-ray analysis, and by thermal and thermogravimetric analysis up to 800C. The infrared spectra indicated that protons are bonded in the compound both in the form of hydroxonium ions, H_3O^+ , and in the form of POH groups of the phosphate structure, corresponding to the formula $(\text{H}_3\text{O})_x\text{GaH}_{3-x}(\text{PO}_4)_2$

Card 1/2

L 34203-65

ACCESSION NR: AP5007617

*(2.5-x)H₂O, the numerical value of x being unknown. The study of thermal transitions proved that gallium phosphate of the berlinite type is formed at the first dehydration step at 135-200C and is present in all products of thermal decomposition, the latter proceeding by the reaction

$$2(\text{H}_3\text{O})_x\text{GaH}_{3-x}(\text{PO}_4)_2 \xrightarrow[200-500\text{C}]{-2\text{H}_2\text{O}} 2\text{GaPO}_4 \text{ (berlinite) + crystalline}$$

acidic phosphate $\xrightarrow[550-570\text{C}]{-\text{H}_2\text{O}}$ GaPO₄ (berlinite) + Ga(PO₃)

(apparently present in various modifications). Orig. art. has: 2 tables, 2 figures and 1 formula.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. I. S. Kurnakova Akademii nauk SSSR (General and inorganic chemistry institute, Academy of sciences, SSSR)

SUBMITTED: 11Nov64

ENCL: 00

SUB CODE: OP, IC

NO REF SOV: 005

OTHER: 009

Card 2/2

L 53729-65 ENT(e)/ENT(m)/EFF(c)/ENP(i)/ENP(v)/EPR/I/ENP(t)/ENP(b) FT-4/PS-1
IJP(c) JD/NW/WH
ACCESSION NR: AP5009371

UR/0363/65/001/002/0211/0217
546.621'185:543.422.4

AUTHOR: Medvedeva, V. M.; Medvedev, A. A.; Tananayev, I. V.

TITLE: Infrared and x-ray diffraction study of thermal conversions in aluminophosphate binder

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 2, 1965, 211-217

TOPIC TAGS: aluminum phosphate, ir absorption spectrum, thermal energy conversion

ABSTRACT: The purpose of this study was to investigate the physicochemical processes which take place in aluminophosphate binder when it is heated to high temperatures and to determine the structure of the phases which occur in this material. The investigation was carried out by infrared spectroscopy and x-ray diffraction. The infrared spectra were taken on an IKS-14 spectrophotometer with lithium fluoride, sodium chloride and potassium bromide prisms. The materials were studied as suspensions in vaseline. Spectra of $Al_4(P_2O_7)_3$ and $Al(H_2PO_4)_3$

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L 53729-65

ACCESSION NR: AP5009371

were taken to determine the composition of the thermally processed aluminophosphate binder specimens. The aluminophosphate binder composition was $\text{Al}_2\text{O}_3/\text{P}_2\text{O}_5 = 1/2.3$. The analysis showed that the binder consists originally of three compounds: $\text{Al}(\text{H}_2\text{PO}_4)_3$, $\text{Al}_2(\text{HPO}_4)_3$ and $\text{AlH}_3(\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$. During heating to 270°C $\text{Al}(\text{H}_2\text{PO}_4)_3$ and $\text{AlH}_3(\text{PO}_4)_2 \cdot 3\text{H}_2\text{O}$ are converted into aluminum polyphosphate and at 1000°C into aluminum tetrametaphosphate. At 1300°C aluminum tetrametaphosphate decomposes into AlPO_4 and P_2O_5 . The disubstituted aluminum orthophosphate is converted into aluminum pyrophosphate at 400°C and 1000°C it is completely decomposed into $\text{AlPO}_4 \cdot \text{P}_2\text{O}_5$. In the 1300 - 1800°C range the binder is primarily AlPO_4 with a small amount of corundum detected in the specimen heated to 1800°C . Orig. art. has: 4 figures and 2 tables.


ASSOCIATION: none

ENCL: 00

SUB CODE: OP, TD

NO REF SOV: 008

OTHER: 015


Card 2/2

L 54991-65 EWT(m)/EPA(s)-2/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c) Pt-7/Pu-4 IJP(c)
 ACCESSION NR: AP5011932 JD/JG UR/0363/65/001/003/0369/0373
 546.659'185-324

AUTHOR: Tananayev, I. V.; Shevchenko, G. V.

TITLE: Samarium pyrophosphates

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 3, 1965, 369-373

TOPIC TAGS: samarium pyrophosphate, samarium, samarium phosphate, phosphate

ABSTRACT: Interaction of trivalent samarium, $\text{Sm}(\text{NO}_3)_3$, with pyrophosphates of lithium, sodium, and potassium was studied in aqueous solutions at 25°C . The precipitated pyrophosphates were examined by thermogravimetric and x-ray techniques. The starting concentration of $\text{Sm}(\text{NO}_3)_3$ was equal to 0.025 mol/l while the concentration ratios of alkali metal pyrophosphate to $\text{Sm}(\text{NO}_3)_3$ varied from 0.5 to 2.0. At equilibrium, the unreacted Sm^{3+} and $\text{P}_2\text{O}_7^{4-}$ in solution were determined analytically and the balance was assumed to be present in the precipitate. It was found that a regular samarium pyrophosphate hydrate, $\text{Sm}_4(\text{P}_2\text{O}_7)_3 \cdot 14\text{H}_2\text{O}$ first precipitates and then, at elevated alkali metal pyrophosphate concentrations a binary pyrophosphate, $\text{MSmP}_2\text{O}_7 \cdot 4\text{H}_2\text{O}$ is formed where M is Li, Na, or K. All the pyrophosphate precipitates

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L 54991-65

ACCESSION NR: AP5011932

are amorphous. They can be converted into crystalline form by calcining:
Sm₄(P₂O₇)₃ at 63°C, LiSmP₂O₇ at 500°C, NaSmP₂O₇ at 545°C, and KSmP₂O₇ at 600°C.
Orig. art. has: 1 table and 7 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademi
demii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences,
SSSR)

SUBMITTED: 08Dec64

ENCL: 00

SUB CODE: IC,GC

NO REF SOV: 003

OTHER: 002

Card 2/2

L 52070-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EWP(t)/EWP(b) Pr-4/Pt-7/Pu-4
 IJP(c) JD/JG

UR/0363/65/001/004/0514/0519

ACCESSION NR: AP5014082

AUTHOR: Tananayev, I. V.; Dzhabishvili, N. A.

TITLE: Yttrium phosphates

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 4, 1965, 514-519

TOPIC TAGS: yttrium compound, phosphate, sodium compound, chloride, phosphoric acid, thermal analysis, gravimetric analysis

ABSTRACT: The formation of yttrium phosphates in $YCl_3 - H_3PO_4$ (NaH_2PO_4 , Na_2HPO_4 , Na_3PO_4) - H_2O systems was studied at $25^\circ C$ by determining the solubility, pH, and conductance at a constant YCl_3 concentration of 0.025 mol/l in the starting mixture and an increasing phosphate concentration. The precipitated solid phases were studied by means of chemical and thermogravimetric analysis. A single compound of the composition $YPO_4 \cdot 2H_2O$ was precipitated in $YCl_3 - H_3PO_4(NaH_2PO_4) - H_2O$ systems. In the system involving Na_2HPO_4 , neutral yttrium phosphate $YPO_4 \cdot 2H_2O$ is formed during the first stage of the reaction (when $n = PO_4^{3-} : Y^{3+} = 1.5$ or less), and the mixed salt $2YPO_4 \cdot Na_2HPO_4 \cdot 4H_2O$ is formed at the end of the second stage (when $n = 12$). In the

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L 52070-65

ACCESSION NR: AP5014082

system involving Na_3PO_4 , the basic salt $9\text{YPO}_4 \cdot \text{Y}(\text{OH})_3 \cdot 27\text{H}_2\text{O}$ is formed first; reacting further with trisodium phosphate, it is converted to the neutral yttrium phosphate $\text{YPO}_4 \cdot 2\text{H}_2\text{O}$, and excess precipitant causes the separation of the mixed salt $2\text{YPO}_4 \cdot \text{Na}_3\text{PO}_4 \cdot 5\text{H}_2\text{O}$. The authors are now studying the reactions of yttrium ions with potassium and cesium phosphates, and of yttrium phosphate with phosphoric acid. Orig. art. has: 12 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 12Jan65

ENCL: 00

SUB CODE: IC,GC

NO REF SOV: 013

OTHER: 002

2/2

L 52071-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/T/ENP(t)/ENP(b)/ENA(c) Pr-4/Pt-7/Pu-4
IJP(c) JD/JG
ACCESSION NR: AP5014083 UR/0363/65/001/004/0520/0524

AUTHOR: Tananayev, I. V.; Dzhabishvili, N. A.

TITLE: Reactions of yttrium chloride with potassium phosphates

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 4, 1965, 520-524

TOPIC TAGS: chemical reaction, phosphate, yttrium compound, potassium compound, thermographic analysis, chemical analysis, chloride

ABSTRACT: The paper is a continuation of the study of yttrium phosphates and deals with the effect of acidity and alkalinity on the reactions between yttrium chloride and potassium phosphates. The effect of the nature of the alkali metal on the composition of the yttrium phosphates formed is also examined. The $YCl_3 - K H_3 PO_4 - H_2O$ (where $x = 1, 2, \text{ and } 3$) were investigated at 25° according to solubility, pH variation, and conductance. In the $YCl_3 - KH_2PO_4 - H_2O$ system, only neutral yttrium phosphate of constant $YPO_4 \cdot 2H_2O$ composition is formed. The reaction between YCl_3 and K_2HPO_4 proceeds in two stages: first neutral yttrium phosphate is formed, then

Cord 1/2

L 52071-65

ACCESSION NR: AP5014083

a mixed phosphate, $5YPO_4 \cdot 2K_2HPO_4 \cdot 9H_2O$, is produced. YCl_3 forms the neutral phosphate with K_3PO_4 only at the ratio $PO_4^{3-} : Y^{3+} = n = 1$; when $n = 4$ and higher, the precipitate has the constant composition $5YPO_4 \cdot 2K_3PO_4 \cdot 10H_2O$. The effect of pH was found to be the same as in the $YCl_3 - NaH_2PO_4$ systems which were studied previously. The effect of the alkali metal is revealed in various tendencies to form mixed salts; this tendency increases from sodium to potassium. The solid phases obtained during the experiments were subjected to chemical and thermographic analysis. Thermograms of the potassium and sodium mixed salts showed that their behavior is similar during heating. Orig. art. has: 9 figures.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova
(Institute of General and Inorganic Chemistry)

SUBMITTED: 12Jan65

ENCL: 00

SUB CODE: IC, GC

NO REF SOV: 002

OTHER: 000

Card 2/2

L 36698-65 INT(r)/INT(b)/INT(t) INT(c) JD/JG

ACCESSION NR: AP5005009

S/0078/65/010/002/0414/0420

AUTHOR: Tananayev, I. V.; Shevchenko, G. V.

TITLE: Samarium ferrocyanides

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 2, 1965, 414-420

TOPIC TAGS: samarium ferrocyanide, samarium alkali, metal ferrocyanide, solubility, e. m. f., electric conductance

ABSTRACT: The reaction of Sm^{3+} with alkali metal ferrocyanides was subjected to solubility, e. m. f. and electric conductivity studies. In the $\text{SmCl}_3\text{-M}_4[\text{Fe}(\text{CN})_6]\text{-H}_2\text{O}$ system ($\text{M} = \text{Li, Na, K, Rb and Cs}$), when $\text{M} = \text{Li or Na}$, the products formed were $\text{Sm}_4[\text{Fe}(\text{CN})_6]_3 \cdot 15\text{H}_2\text{O}$ and $\text{NaSm}[\text{Fe}(\text{CN})_6] \cdot 3\text{H}_2\text{O}$, respectively. In the systems with K, Rb and Cs ferrocyanides, mixed ferrocyanides were formed: $\text{MSm}[\text{Fe}(\text{CN})_6] \cdot 4\text{H}_2\text{O}$. The solubility in water was determined: $\text{Sm}_4[\text{Fe}(\text{CN})_6]_3 \cdot 15\text{H}_2\text{O}$, 1.5×10^{-3} ; $\text{NaSm}[\text{Fe}(\text{CN})_6] \cdot 3\text{H}_2\text{O}$, 1.3×10^{-3} ; $\text{KSm}[\text{Fe}(\text{CN})_6] \cdot 4\text{H}_2\text{O}$, 2.5×10^{-4} , and $\text{RbSm}[\text{Fe}(\text{CN})_6] \cdot 4\text{H}_2\text{O}$, 3.0×10^{-5} mol/l. Orig. art. has: 3 tables and 16 figures

Card 1/2

L 36698-65

ACCESSION NR: AP5005009

ASSOCIATION: None

SUBMITTED: 14Nov63

ENCL: 00

SUB CODE: GC, IC

NR REF SOV: 004

OTHER: 002

Card 2/2

L 36697-65 EWT(m)/EWP(b)/EWP(t) IJP(c) JD/JG

ACCESSION NR: AP5005010

S/0078/65/010/002/0421/0424

AUTHOR: Shevchenko, G. V.; Tananayev, I. V.

TITLE: Thermal decomposition of samarium ferrocyanides

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 2, 1965, 421-424

TOPIC TAGS: samarium ferrocyanide, thermal decomposition, samarium sodium ferrocyanide, samarium potassium ferrocyanide, samarium lithium ferrocyanide, samarium rubidium ferrocyanide, samarium cesium ferrocyanide

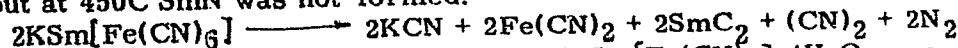
ABSTRACT: A thermographic study was made of the thermal decomposition under an argon atmosphere of normal samarium ferrocyanide and of the mixed samarium-alkali metal ferrocyanides. $\text{Sm}_4[\text{Fe}(\text{CN})_6] \cdot 14\text{H}_2\text{O}$ dehydrated at 160-240C in 2 hours. Cyanide evolution occurred at 360-420; SmN formed at 450C: $\text{Sm}_4[\text{Fe}(\text{CN})_6] \longrightarrow 3\text{Fe}(\text{CN})_2 + 2\text{SmC}_2 + 2\text{SmN} + 4(\text{CN})_2 + \text{N}_2$
The decomposition of $3\text{Fe}(\text{CN})_2 \longrightarrow \text{Fe}_3\text{C} + 5\text{C} + 3\text{N}_2$ was at 610C.
 $\text{NaSm}[\text{Fe}(\text{CN})_6] \cdot 3\text{H}_2\text{O}$ dehydrated at 180-250C.

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L 36697-65

ACCESSION NR: AP5605010

$4\text{NaSm}[\text{Fe}(\text{CN})_6] \longrightarrow 4\text{NaCN} + 4\text{Fe}(\text{CN})_2 + 2\text{SmN} + 2\text{SmC}_2 + 4(\text{CN})_2 + \text{N}_2$
 $\text{KSm}[\text{Fe}(\text{CN})_6] \cdot 4\text{H}_2\text{O}$ dehydrated similarly at 220C; $(\text{CN})_2$ and N_2 evolution was at 315C; but at 450C SmN was not formed:



The behavior of $\text{RbSm}[\text{Fe}(\text{CN})_6] \cdot 4\text{H}_2\text{O}$ and of $\text{CsSm}[\text{Fe}(\text{CN})_6] \cdot 4\text{H}_2\text{O}$ was very similar to that of the K complex, except the dehydration of the Cs compound occurred readily and in two stages at 150 and 220C. Thus the alkali metal cation affected the properties of these salts. The anhydrous $\text{NaSm}[\text{Fe}(\text{CN})_6]$ was unstable, started to decomposed at 240C; the other anhydrous mixed complexes were stable to 320C. "The authors acknowledge G. V. Seyfer's help in the work." Orig. art. has: 5 figures, 1 table and 3 sets of equations

ASSOCIATION: None

SUBMITTED: 11Feb64

ENCL: 00

SUB CODE: MM, IC

NR REF SOV: 005

OTHER: 001

Card 2/2

TANANAYEV, I.V.; CHUDINOVA, N.N.

Phosphates containing gallium and a univalent cation. Zhur. neorg.
khim. 10 no.4:780-785 Ap '65. (MIRA 18:6)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN
SSSR.

L 59234-65 EWT(1)/EWT(m)/EPF(c)/EPR/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Pr-4/Ps-4/Feb
 IJP(c) JD/JG/AT
 ACCESSION NR: AP5015018

UR/0078/65/C10/006/1507/1508
 546.41'221

37
 B

AUTHOR: Tananayev, I. V. ; Kuvshinova, T. B.

TITLE: Reaction of GaS with gaseous ammonia at high temperatures

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 6, 1965, 1507-1508

TOPIC TAGS: ²⁷gallium nitride, ²⁷gallium sulfide, ²⁷ammonia, ²⁷semiconductor

ABSTRACT: The emissive properties of the semiconductor gallium nitride (GaN) are determined to a large extent by the temperature at which it is synthesized. In this connection, the authors propose a method for preparing GaN at relatively low temperatures (800 and 900C) by reacting GaS with dry ammonia, the reaction is



The products were stable in air at room temperature; at about 1000C, they formed gallium oxide. They did not react with water, hydrochloric or nitric acid, but dissolved on heating in concentrated alkalis and after prolonged boiling in dilute sulfuric acid. In order to make sure that the synthesized compound was gallium nitride, not gallium amide (GaNH), GaN was synthesized by the method of H. Hahn and R. Juza (Z. anorg. Chem., 244, 111, 1940).

Card 1/2

L 59234-65

ACCESSION NR: AP5015018

The x-ray diffraction patterns obtained for both products were identical. Orig. art. has:
1 table and 1 formula.

ASSOCIATION: None

SUBMITTED: 19Oct64

ENCL: 00

SUB CODE: IC

NO REF SOV: 000

OTHER: 006

dm
Card 2/2

TANANAYEV, I.V.; BOL'SHAKOVA, N.K.; KAZAKOVA, T.I.

Cesium gallium and rubidium gallium alums. Zhur. neorg. khim.
10 no.2:378-384 F '65.

Thermal decomposition of thallium gallium and ammonium gallium
alums. Ibid.:385-388 (MIRA 18:11)

1. Submitted July 1, 1963.

TANANAYEV, I.V.; NIKOLAYEVA, S.Yu.; SEYFER, G.B.

Interaction in the system $\text{H}_2\text{MoO}_4 - \text{Li}_4\text{Fe}(\text{CN})_6 - \text{H}_2\text{O} - (\text{CH}_3)_2\text{CO}$.
Azerb. khim. zhur. no.1:93-96 1965. (MIRA 18:7)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova AN
SSSR, Moskva.

MEDVEDEVA, V.M.; MEDVEDEV, A.A.; TANANAYEV, I.V.

Study of thermal transformations in an aluminophosphate binder by
the methods of infrared spectroscopy and X-ray phase analysis. Izv.
AN SSSR.Neorg.mat. 1 no.2:211-217 F '65. (MIRA 18:7)

TANANAYEV, I.V., SHEVCHENKO, G.V.

Samarium pyrophosphates. Izv. AN SSSR. Neorg. mat. 1 no.3:
369-373 Mr '65. (MIRA 18:6)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova
AN SSSR.

AVDUYEVSKAYA, K.A.; TANANAYEV, I.V.; MIRONOVA, V.S.

Reaction of GeO_2 with KH_2PO_4 solutions. Izv. AN SSSR. Neorg.
mat. 1 no.6:894-899 Je 1965. (MIRA 18:8)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.
Kurnakova AN SSSR.

TANANAYEV, I.V.; SHEVCHENKO, G.V.

Samarium ferrocyanides. Zhur. neorg. khim. 10 no.2:414-420 F '65.

Thermal decomposition of samarium ferrocyanides.
Ibid.:421-424 (MIRA 18:11)

1. Submitted Febr. 11, 1964.

TANANAYEV, I.V.; DZHABISHVILI, N.A.

Determination of phosphate ions and their separation for the
determination of alkaline metals. Zhur. anal. khim. 20 no.9;
1019-1020 '65. (MTRA 18:9)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova
AN SSSR, Moskva.

GERVORK'YAN, V.Kh. [Hevork'ian, V.Kh.]; TANANAYEV, M.V. [Tananaiev, M.V.]

Presence of nonbound aluminum oxide in the Lower Cretaceous
sediments of the northeastern Azov Sea region. Geol. zhur. 24
no.2:83-84 '64 (MIRA 18 :2)

1. Institut gornogo dela AN UkrSSR.

5(2)

SOV/156-59-2-17/48

AUTHORS: Kuznetsova, V. K., Tananayev, N. A.

TITLE: A Color Reaction for Gallium (Tsvetnaya reaktsiya na galliy)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 289-292 (USSR)

ABSTRACT: Brilliant green which is easily obtained is recommended as reagent with respect to gallium. In 6-n hydrochloric acid a complex extractable by benzene is formed. The solution follows Beer's law (Fig 1) and permits the detection of $1 \cdot 10^{-5}$ g Ga in 1 ml benzene. The reaction is very selective; the high acid concentration prevents the formation of other complex anions of gallium and brilliant green. It is possible to carry out the reaction in the presence of ions of alkali- and alkaline earth as well as of aluminum, indium, titanium, zirconium, vanadium, chromium, molybdenum, uranium, manganese, cobalt, nickel, copper, zinc, cadmium, mercury, lead, arsenic, bismuth, selenium, tellurium, rhenium, palladium, ruthenium, platinum, niobium and tantalum. The Fe^{3+} -, Tl^{3+} .. and Au^{3+} -ions exercising a disturbing effect are eliminated by reduction with titanium trichloride. Aluminum increases the sensitivity

Card 1/2

A Color Reaction for Gallium

SOV/156-59-2-17/48

of the reaction by a more complete extraction of the gallium complex (Fig 4). Figure 2 shows the dependence of the optical density of the benzene solution upon the acid concentration. The data of analyses are given by a table. There are 4 figures, 1 table, and 15 references, 8 of which are Soviet.

PRESENTED BY: Kafedra analiticheskoy khimii Ural'skogo politekhnicheskogo instituta im. S. M. Kirova
(Chair of Analytical Chemistry, Ural Polytechnic Institute imeni S. M. Kirov)

SUBMITTED: December 13, 1958

Card 2/2

TANANAYEV, N.A. [deceased]

Results of and prospects for the application of the method of
analysis without chipping. Trudy Ural. politekh. inst. no.94:
122-129 '60. (MIRA 15:6)
(Chemistry, Analytic)

TANANAYEV, N.A. [deceased]; MALKINA, T.G.

Fractional copper detection reaction. Ukr.khim.zhur. 29 no.6:
631-632 '63. (MIRA 16:9)

(Copper—Analysis)

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS																																																	
PROCESSES AND PROPERTIES INDEX																																																											
<p><i>CR</i></p> <p><i>15</i></p> <p><i>6</i></p> <p>Baryte method for the volumetric determination of alkalis. N. V. Tsimonay, <i>Zavodskaya Lab.</i> 1933, No. 6/6, 51-6; <i>Chem. Zentr.</i> 1934, II, 3410.—The detn. of alkalies for soil analysis is carried out as follows: The finely powd. sample (0.5-1 g.) moistened with water is treated with 3-5 cc. HF and evapd. to dryness on the water bath 2-3 times. Two cc. concd. H_2SO_4 is then added and the sample evapd. on the sand bath until all SO_3 is driven off. The dry sulfate residue is taken up in 10 cc. hot water, sufficient $NaCl$ is added to give a strong alk. reaction, and the whole heated on the water bath 30 min. with frequent stirring. The hot soln. is filtered and a satd. soln. of $(NH_4)_2CO_3$ added to the filtrate, which is then evapd. on the water bath and ignited at low heat. The dry residue is dissolved in CO_2-free water, filtered, and the filtrate titrated with 0.1 N HCl with methyl orange. M. G. M.</p>																																																											
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																																																											
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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

2ND AND 4TH ORDERS

COMMON ELEMENTS

COMMON VARIABLE INDEX

15

Rapid Determination of Phosphorus and Molybdenum in Iron and Steel. N. V. Tananay. Henry Brucher, Translation No. 2193, 2 pages. From *Zavodskaya Laboratoriya* (Factory Laboratory), v. 14, Aug. 1948, p. 914.

Previously abstracted from original.

ASH-66A METALLURGICAL LITERATURE CLASSIFICATION

FROM MONIV

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

COMMON ELEMENTS

COMMON VARIABLE INDEX

1ST AND 2ND COLUMNS		PROCESSING AND PROPERTIES INDEX		3RD AND 4TH COLUMNS	
<p>CA</p>		<p>Rapid determination of carbon dioxide, calcium oxide, and magnesium oxide in dolomites. V. N. Tananayev, Zvezdskaya Lab. 14, 1131-2(1948).-- Moisture 0.2 g. of sample with water and add 25 ml. of 0.2 N HCl. Heat with reflux condensation until gas evolution stops. Cool and titrate the excess HCl with 0.2 N NaOH to get the CO₂ content. Treat the neutral soln. with a few drops of 3% H₂O₂ and add 0.2 N NH₄OH in slight excess and 25 ml. 0.2 N (NH₄)₂C₂O₄ soln. Filter off the CaC₂O₄·H₂O and titrate the oxalate content with KMnO₄. Calc. the CO₂ combined with MgO from the difference in equivs. of the two titrations.</p>		<p>7</p>	
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>		<p>E 277</p>			
<p>1ST AND 2ND COLUMNS</p>		<p>3RD AND 4TH COLUMNS</p>			
<p>1ST AND 2ND COLUMNS</p>		<p>3RD AND 4TH COLUMNS</p>			

TANANAYEV, N. V.

PA 3/49T16

USSR/Chemistry - Laboratories, Industrial Aug 48
Chemistry - Analysis

"Progressive Standards in Analytical Work," N. V.
Tananayev, Supervisor, Cen Lab, Novo-Tagil'sk Metal
Factory, 1 p

"Zavod Lab" Vol XIV, No 8

Tabulates time taken for various determinations in
author's laboratory. Outlines method used for
phosphorus and manganese.

FDB

3/49T16

TANANAYEV, N. V.

IA 159T50

USSR/Metals - Carbon Steel
Chemical Analysis Feb 50

"Quantitative Determination of Copper in Carbon Steel Without Using Shavings," N. V. Tananayev, M. I. Dubova, Novo-Tsagil Metallurgical Plant, 1 p

"Zavod Lab" Vol XVI, No 2

New method based on appearance of pink coloration during reaction of bivalent copper with potassium ferrocyanide in acetic acid solution. Results of this method are in good agreement

FDD 159T50

USSR/Metals - Carbon Steel (Contd) Feb 50

With results of analysis by iodometric and electrolytic methods, yet analysis by this method takes less time. Accuracy of determination is 0.025% Cu.

FDD 159T50

FDD PA 107171

TANANAYEV, N. V.

USSR/Metals - Ferrous, Ores, Analysis Aug 50

"Polarographic Determination of Copper in Steel, Cast Iron and Ores," N. V. Tananayev, K. A. Matveyeva, A. B. Dyukov, Novo-Tagil Metallurgical Plant

"Zavod Lab" Vol XVI, No 8, pp 1003-1004

Describes rapid method for determination of Cu in production control. Polarographing of Cu was conducted in ammonia medium, concentration was determined by height of 2d wave, i.e., at transition of monovalent Cu to metallic state. Determination takes 40 min, accuracy is 0.01-0.02%.

FDD

169T41

GEVORK'YAN, V.Kh. [Gevork'yan, V.Kh.], TANANAYEV, N.V. [Tananaiev, N.V.]

Some data on the initial stages of the leucogenization of
ilmenite from sediments in the region of the Sea of Azov.
Dop. AN UPSR no.10:1366-1369 '64. (MIRA 17:12)

1. Institut geologicheskikh nauk AN UkrSSR. Predstavleno
akademikom AN UkrSSR N.P. Semenenko [Semenenko, M.P.].

TANANAYEV, I.V.; VASIL'YEVA, V.P.

Lanthanum pyrophosphates. Zhur. neorg. khim. 9 no.10:2284-2286
O '64. (MIRA 17:12)

TANANAYEV, V. S., mashinist

Method for disconnecting a faulty section of the N8 electric locomotive. Elek. i tepl. tiaga 6 no.9:34-35 S '62.
(MIRA 15:10)

1. Depo Tayga Zapadno-Sibirskoy dorogi.
(Electric locomotives)

TANANAYEVA, A. N. Cand Chem Sci -- (diss) "A New Rapid Method
of Carbide Analysis" Sverdlovsk, 1957. 16 pp 22 cm (Min of
Higher Education USSR, Ural Polytechnic Inst in ^{S.M.} Kirov), 100 copies
(KL, 16-57, 100)

-6-

TAMANAYEVA, A. N.

✓ 1986 New rapid method of carbide analysis in
steel

carbides

137-58-4-8625

Translation from: Referativnyy zhurnal, Metallurgiya, 1958. Nr 4, p 328 (USSR)

AUTHOR: Tananayeva, A.N.

TITLE: On the Theory of the Chipless Dissolution of Alloys (K voprosu o teorii besstruzhkovogo rastvoreniya splavov)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1957, Nr 69, pp 143-147

ABSTRACT: Experience demonstrates the complete applicability of the chipless method of analysis to alloys (A) of heterogeneous structure. A with heterogeneous structures may dissolve unevenly. The Fe carbides present in steels constitute a finely dispersed phase, and therefore the remaining insoluble carbide phase also goes into solution and is analyzed. In alloy steels, the Fe atoms block, as it were, the more reactive components of the A. Therefore, the alloying elements beneath the layer of Fe atoms cannot go into solution until the layer of Fe atoms surrounding them dissolves. Thus, in the long run, solution of alloy steels proceeds uniformly. On the whole, the mechanism of solution of alloy steels is the same as that of low alloy steels. The only difference is that solution of these steels occurs at a higher potential.

Card 1/1

V.N.

1. Alloys--Solubility--Theory

357
S/126/62/013/00
E111/E580

113
THORS:
TITLE:

Levitin, V.V. and Tananayeva, A.N.
Contribution to the theory of the intergranular
corrosion of stainless steels

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.1, 1962,
82-85

TEXT: The most widely accepted theory of the susceptibility
of austenitic stainless steels to intergranular corrosion is based
on the idea that solid-solution zones adjacent to the precipitated
carbide phase are impoverished in chromium. The present work
attempts to prove experimentally this theory. The method was based
on the difference between the electrode potentials of the
impoverished zone and solid solution (Ref.13: Schafmeister P.
Arch. Eisenhüttenw., 1937, 10, 405) under intergranular-corrosion
test conditions. The average thickness h of the zone is given
(though not very accurately) by:

$$h = \frac{cdS\sum L}{P}$$

where P is the weight of dissolved chromium, c the average
Card 1/3

Contribution to the theory of ...

S/126/62/013/001/007/018
E111/E580

concentration, d the density, S the surface of the specimen, ℓ the depth (small compared with specimen size) of corrosion penetration, ΣL the area of intergranular boundary per unit volume of specimen. Specimens 9 x 9 x 10 mm were machined from 12 x 12 mm forged bars of type 1X18H9 (1Kh18N9) steel (0.08% C, 18.0% Cr, 9.3% Ni, 1.2% Mn, 0.20% Si, 0.015% P and 0.018% S). After hardening and tempering each specimen was polished with emery, weighed and refluxed for 24, 48 or 72 hours in 40 ml of a solution of 55 ml H_2SO_4 and 110 ml $CuSO_4 \cdot 5H_2O$ per litre water. Iron, chromium and nickel were determined colorimetrically, ℓ metallographically and ΣL by the random-intercepts method. h was found to be 950-1530 Å for 48 hours treatment and depended little on tempering temperature. After 72 hours treatment h became 910-4060 Å. The latter is attributed to the greater distance between carbide particles and zones with more chromium. Although this investigation confirms the impoverishment theory, the authors note that this does not exclude the likelihood of other factors making steel liable to intergranular corrosion. There are 1 figure and 3 tables.

Card 2/3

Contribution to the theory of ...

S/126/62/013/001/007/018
E111/E580

ASSOCIATION: Ural'skiy institut chernykh metallov
(Ural Institute of Ferrous Metals)

SUBMITTED: May 10, 1961

Card 3/3

YAKIMETS, Ye.M.; TANANAYEVA, A.N.; SHABASHOVA, N.V.

Rapid trilonometric determination of zinc in copper-containing materials. Trudy Ural.politekh.inst. no.130:58-61 '63.

(MIRA 17:10)

TA N A A Y E V A, G. A.

21(4)

ISSUE 1 MORE INFORMATION 807/2712
International Conference on the Peaceful Use of Atomic Energy. 2nd,
Geneva, 1958

Relatively accessible subjects; yadernaya goryuchaya i reaktoraya metall.
(Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow,
Akademizdat, 1959. 670 p. (Series: 116; Trudy, vol. 3, 6, 660 copies

MA. (Title page): A.A. Rezhov, Academician, A.P. Vinogradov, Academician,
V.A. Zaslavskiy, Corresponding Member, USSR Academy of Sciences, and
A.P. Zaitsev, Doctor of Technical Sciences; MA. (Inside book): V.I.
Pavlovskiy and G.M. Pavlovskiy; Tech. MA: E.I. Masel'.

PROGRAM: This volume is intended for scientists, engineers, physicians, and
biologists working in the production and peaceful application of atomic
energy; for technicians and higher technical education where the subject is taught; and for people
interested in atomic science and technology.

CONTENTS: This is volume 3 of a 5-volume set of reports on atomic energy
presented by Soviet scientists at the Second International Conference on the
Peaceful Use of Atomic Energy, held in Geneva from September 1 to 13, 1958.
Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is
devoted to geology, prospecting, concentration and processing of nuclear
raw materials. The second part, edited by G.L. Zverev, includes reports
on metallurgy, metallurgy, and section irradiation effects on metals. The title of the
official Russian language edition on the Conference proceedings. See
807/2001 for the titles of the other volumes in the set.

Il'yukin, A.I., G.A. Pavlovskiy, G.D. Shalunov, I.V. Mikhlin, V.A. Pavlovskiy,
and E.I. Pavlovskiy. Radiometricheskaya kontrol'nyykh i gidrotermal'nykh mineral'nykh
- is Uranium Deposits of the Soviet Union (Report No. 2201)

Gerasimov, A.I., E.G. Melnik, G.A. Volkov, A.K. Kislitsin, and V.G. Serebrennikov.
New localities of Uranium Distribution in Underground Waters (Report
No. 2099)

New Data on Uranium Minerals in the USSR (Report No. 2060)

Gerasimov, A.I., E.V. Kravchenko, A.I. Sitnikov, M.M. Sokolov, E.K.
Kocherzhevskiy, S.A. Zverev, and I.V. Tikhonov. Some Theoretical and Technical
Problems of Radiometric Prospecting and Survey (Report No. 2505)

Balashov, Yu. P. The Gamma-ray Radiation Method for Classifying
Anomalies in Radioactivity (Report No. 2245)

Korshak, G.A., and E.I. Shtrichenko. Some Problems of Radiometric Uranium
One Concentration (Report No. 2061)

Card 4/11

RYBALOVA, E.K.; TANANAYEVA, G.A.

Age relation of diabase porphyrite dikes and ore veinlets
in a uranium deposit. Geol. rud. mestorozh. 5 no.2:115-118
Mr-Ap '63. (MIRA 16:6)

(Dikes(Geology)) (Ore deposits)